



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Rhoads et al.

Application No.: 09/465,418

Filed: December 16, 1999

For: COUNTERFEIT DETERRENCE  
SYSTEM

Examiner: M. Dastouri

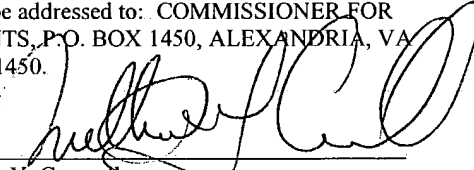
Date: November 12, 2004

Art Unit 2623

Confirmation No. 8844

**CERTIFICATE OF MAILING**

I hereby certify that this paper and the documents referred to as being attached or enclosed herewith are being deposited with the United States Postal Service on November 12, 2004, as First Class Mail in an envelope addressed to: COMMISSIONER FOR PATENTS, P.O. BOX 1450, ALEXANDRIA, VA 22313-1450.

  
William Y. Conwell  
Attorney for Applicant

**DECLARATION**

**RECEIVED**

**NOV 18 2004**

**Technology Center 2600**

I, William Y. Conwell, declare:

1. I am an attorney admitted to practice before the USPTO (Reg. No. 31,943), and represent the assignee Digimarc Corporation in connection with the captioned application.
2. I personally downloaded from the internet, and printed, the following documents, shortly before their submission to the USPTO with the Amendment After Final filed September 17, 2003 (mailed on August 19, 2003):
  - a. the [www.rulesforuse.org](http://www.rulesforuse.org) home page (entitled "Facts About Using Banknote Images");
  - b. Network Solutions 'whois' search results, showing ownership of the rulesforuse.org domain by the European Central Bank;
  - c. Web page (entitled "Representations/Reproductions of Australian Currency Notes") resulting when the 'Australia' link on the [www.rulesforuse.org](http://www.rulesforuse.org) web page is clicked (that resulting web page is <http://www.rba.gov.au/CurrencyNotes/LegalFramework/representation.ht>

ml and is published by the Reserve Bank of Australia, the central bank for that country;

- d. USENET posting with the subject "Bank Notes and PSP8" concerning linking to [www.rulesforuse.org](http://www.rulesforuse.org) a banknote image is loaded in PaintShop Pro 8 (PSP8)  
(<http://groups.google.com/groups?q=%22rulesforuse.org%22&hl=en&lr=&ie=UTF-8&oe=UTF-8&selm=yt7V4BAyUv7%2BEwtD%40braeburn.demon.co.uk&rnum=2> )
- e. Web newspaper clipping entitled "Counterfeiting Tempting For Teens"  
(<http://www.dailymail.com/news/Money/200305165/> )

3. I personally downloaded from the internet, and printed, the following documents, shortly before their submission to the USPTO with the Amendment Accompanying RCE filed October 27, 2003:

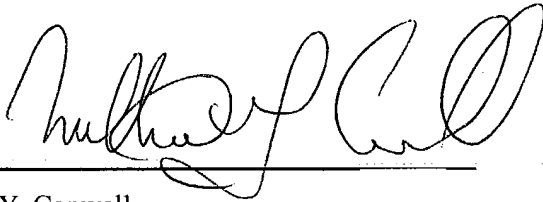
- a. Thread of 15 postings to internet discussion group (USENET) with the subject "*New 20.*"
- b. Posting to internet discussion group (USENET) with the subject "*Scanner Recs Wanted*" and listing J.S. Snow as author.
- c. Web page "*Know Your Money*" published by the U.S. Secret Service and hosted by the U.S. Treasury with information about permitted uses of U.S. currency images (and penalties for improper use). This web page was displayed when the undersigned clicked on a "USA" link on the [www.rulesforuse.org](http://www.rulesforuse.org) web page.

4. I personally downloaded from the internet, and printed, each of the following documents, shortly before their submission to the USPTO with the Amendment filed April 30, 2004:

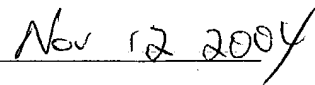
- a. USENET posting with subject "*HP Printers and Currency Anti-Copying Measures,*" dated January 17, 2004 (Exhibit Z, 2 pages);
- b. Article from InformationWeek entitled *World Banks Working to Stop Counterfeiting*, dated March 9, 2004 (Exhibit Y, 2 pages);

- c. Article from CNET News entitled *Adobe, Others Slip Anticounterfeiting Code Into Apps*, dated January 9, 2004 (Exhibit X, 2 pages);
  - d. Web press release from Bank of International Settlements entitled *Central Banks and Technology Industry Join to Combat Banknote Counterfeiting*, dated March 9, 2004 (Exhibit W, 2 pages);
  - e. Web page entitled *About BIS*, [www.bis.org/about/index.htm](http://www.bis.org/about/index.htm), dated June 2003 (Exhibit V, 1 page);
  - f. Posting from [www.adobeforums.com](http://www.adobeforums.com) in thread entitled *No Wonder Photoshop CS Seems Slow – It's Analyzing Images for Content!* by Kevin Connor, dated January 8, 2004 (Exhibit U, 2 pages);
  - g. Web page entitled *Photoshop CS and CDS*, [www.Adobe.com/products/photoshop/cds.html](http://www.Adobe.com/products/photoshop/cds.html) (Exhibit T, 1 page);
  - h. Web page entitled *Stop, You Counterfeiter*, [www.genecowan.com/blog/archives/001039.html](http://www.genecowan.com/blog/archives/001039.html), dated January 8, 2004 (Exhibit S, 2 pages).
5. I personally downloaded from the internet, and printed, the following document, shortly before its submission to the USPTO with the Amendment After Final mailed November 12, 2004:
- a. Presentation made to the 6<sup>th</sup> Information Hiding Workshop in May, 2004 by Steven J. Murdoch of the University of Cambridge, entitled "*Software Detection of Currency*," dated May 23-25, 2004 (labeled Exhibit AA).
6. The above-identified documents submitted to the USPTO are true and accurate copies of what they purport to be. For each of those documents listing a header or footer referencing a web site, such listed web site is the one from which the document was actually downloaded.
7. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false

statements and the like so made are punishable by fine or imprisonment, or both,  
under Section 1001 of Title 18 of the United States Code, and that such willful  
false statements may jeopardize the validity of the application or any patent issued  
thereon.



William Y. Conwell



Date

EXHIBIT AA

Background  
Strongly Detected Regions  
Benchmarking  
More Information

## Software Detection of Currency

Steven J. Murdoch

University of Cambridge, Computer Laboratory,  
15 JJ Thompson Avenue, Cambridge CB3 0FD, United Kingdom  
<http://www.cl.cam.ac.uk/users/sjm217/>

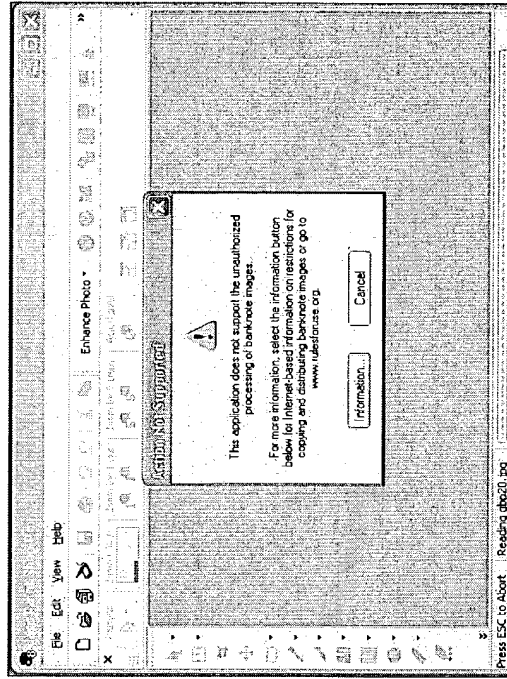
6th Information Hiding Workshop  
Toronto, Ontario, Canada  
23 – 25 May 2004

UNIVERSITY OF  
CAMBRIDGE  
Steven J. Murdoch  
Software Detection of Currency

## Background

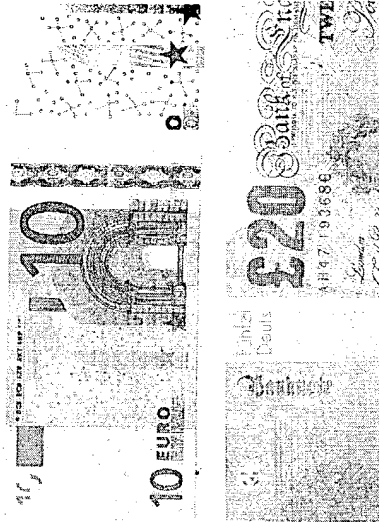
- ▶ New image processing software incorporates code to prevent images of currency being processed
- ▶ Includes Adobe Photoshop, JASC Paintshop Pro, HP printer Drivers, Canon scanner software
- ▶ Details of the detection algorithm not publicly known, even by the authors of software which uses it
- ▶ Code seems to have been produced by Digimarc, on behalf of the G10 Central Bank Counterfeit Deterrence Group (27 banks)

rulesforuse.org



## The EURion Constellation

Markus Kuhn, Computer Laboratory, University of Cambridge, 2002-02-08



Modern colour photo-copying machines refuse to copy many of the more recent banknotes, such as the pound, mark or euro. But how do they decide what is a banknote? They search for a simple geometric pattern, consisting of five 1 mm large circles that appears on many more recent banknotes, but usually in yellow, but often also in green or orange. The circles are particularly well visible in the blue channel, can be easily detected with a matched filter and tested for the presence of the characteristic constellation.

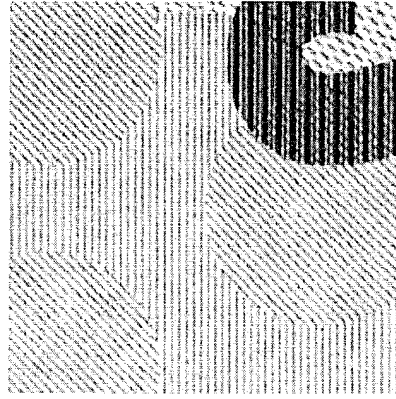
2



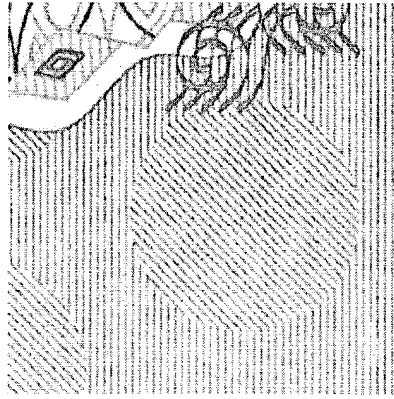
## Strongly Detected Regions (1)



## Strongly Detected Regions (2)



## Strongly Detected Regions (2)



Background  
Strongly Detected Regions  
Benchmarking  
More Information

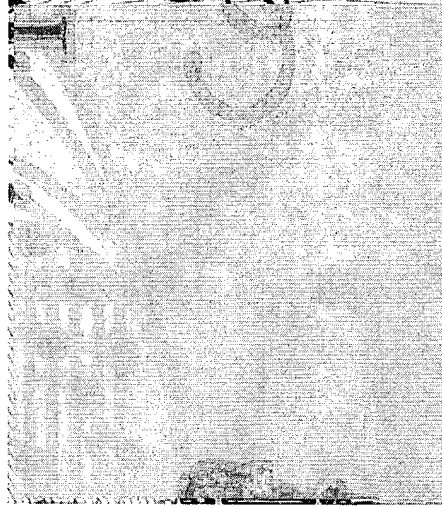
## Strongly Detected Regions (2)



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CAMBRIDGE

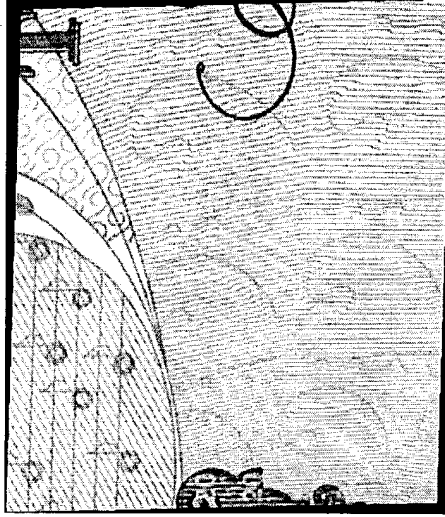
Steven J. Murdoch  
Software Detection of Corruption

## Midpoint Filtering



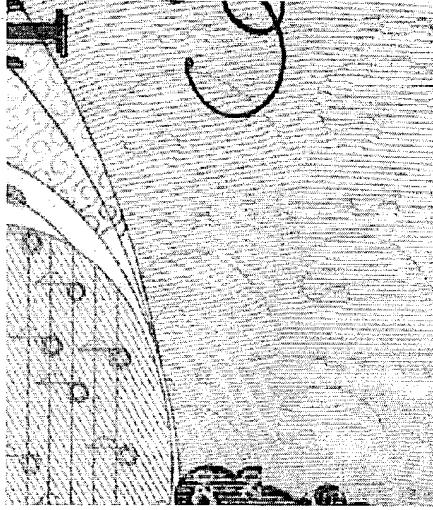
CM\_midpoint(10)

## Shearing



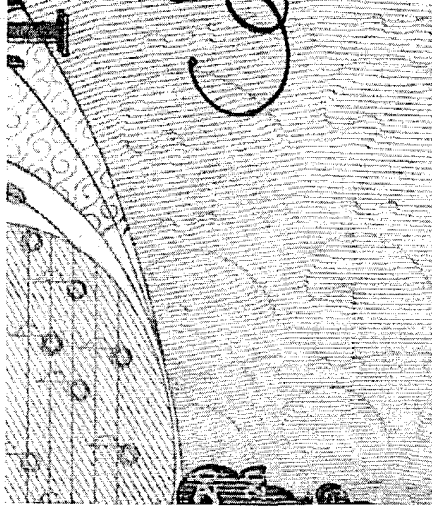
CM\_shearing(2.6)

## Resampling



CM\_sampledownup(0.8, 1/0.8)

## Wavelet Compression



CM\_waveletcompression(0.5)



For more information...

Results of other tests and further details:  
<http://www.cl.cam.ac.uk/users/sjm217/projects/currency/>

Contact:  
<http://www.cl.cam.ac.uk/users/sjm217/>